What is claimed is:

CLAIMS

1. A hydrogen recharging system for fuel cell hydride storage reservoirs, comprising:

an electrolyzer to hydrolyze liquid water to hydrogen gas and oxygen gas, said electrolyzer connected to a water supply;

a hydrogen gas accumulator;

a dryer situated between and connected to the electrolyzer and the accumulator; and

wherein hydrogen gas produced by the electrolyzer is dried in the dryer and then stored in the accumulator such that when a user connects the fuel cell hydride storage reservoir to the hydrogen recharging system, the stored hydrogen gas is rapidly transferred from the accumulator to the hydride storage reservoir, to be retained in the hydride storage reservoir in the form of a metal hydride.

2. The system as described in claim 1, further comprising a heat exchanger to cool the connected fuel cell hydride storage reservoir during transfer of the stored hydrogen.

3. The system as described in claim 1, further comprising a heat exchanger to heat the connected fuel cell hydride storage reservoir prior to transfer of the stored hydrogen, and wherein a pump is used to evacuate the fuel cell hydride storage reservoir during heating.

4. The system as described in claim 1, wherein a pump is used to evacuate the fuel cell hydride storage reservoir.

5. The system as described in claim 4, further comprising a heat exchanger to heat the connected fuel cell hydride storage reservoir during evacuation of the reservoir, and then to cool the connected fuel cell

hydride storage reservoir during transfer of the stored hydrogen.

6. The system as described in claim 1, further comprising a vent on the electrolyzer to vent oxygen produced by the electrolyzer to the surrounding environment.

7. The system as described in claim 1, wherein the accumulator further comprises a compressor.

8. The system as described in claim 1, further comprising a charge meter for measuring the amount of hydrogen transferred to the fuel cell hydride storage reservoir.

9. The system as described in claim 1, wherein the system is contained in a desktop housing less than or equal to one cubic foot in volume.

10. A self-contained hydrogen recharging system for a fuel cell metal hydride storage reservoir, comprising:

a water supply connected to an electrolyzer for converting liquid water to hydrogen and oxygen gas;

hydrogen storage means comprising an accumulator and a compressor;

a dryer situated after the electrolyzer; and

wherein hydrogen gas produced by the electrolyzer is stored in the hydrogen storage means;

a heat exchanger to heat the fuel cell hydride storage reservoir prior to transfer of the stored hydrogen gas, and then to cool the fuel cell hydride storage reservoir during transfer of the stored hydrogen gas; and

wherein upon connection of the fuel cell hydride storage reservoir to the hydrogen recharging system by a user, the stored hydrogen gas is rapidly transferred to the hydride storage reservoir and stowed in the reservoir as a metal hydride.

11. The system as described in claim 7, further comprising a vent on the electrolyzer to vent oxygen produced by the electrolyzer to the surrounding environment.

12. The system as described in claim 7, further comprising a charge meter for measuring the amount of hydrogen transferred to the fuel cell hydride storage reservoir.

13. The system as described in claim 7, further comprising a vacuum pump.

14. A hydrogen recharging system for fuel cell hydride storage reservoirs, comprising:

an electrolyzer to hydrolyze liquid water to hydrogen gas and oxygen gas, said electrolyzer connected to a water supply;

a hydrogen gas accumulator; and

wherein hydrogen gas produced by the electrolyzer is stored in the accumulator such that when a user connects the fuel cell hydride storage reservoir to the hydrogen recharging system, the stored hydrogen gas is rapidly transferred from the accumulator to the hydride storage reservoir, to be retained in the hydride storage reservoir in the form of a metal hydride.